EXECUTIVE SUMMARY

This report presents the statistical evaluation of baseline contaminant concentrations for the interim remedial action (IRA) at Operable Unit 8 (OU 8), Hill Air Force Base (Hill AFB), Utah. The objective of this statistical evaluation is to determine baseline contaminant concentrations prior to initiation of the OU 8 IRA. This evaluation and the ground-water monitoring data which will be collected during the operation of the IRA will be used as a tool to assess the overall performance of the remedy.

The baseline concentrations were determined using the results of one year of quarterly ground-water monitoring data. Baseline concentrations for those indicator compounds detected above Maximum Contaminant Levels (MCLs) were determined based on the upper 95 percent confidence limit of the mean concentrations from the baseline sampling rounds. The following indicator compounds were selected for this baseline concentration evaluation:

- 1,2- Dichlorobenzene (MCL 600 ppb)
- 1,4-Dichlorobenzene (MCL 75 ppb)
- 1,3-Dichlorobenzene (No MCL Established)
- cis-1,2 Dichloroethene (MCL 70 ppb)
- Trichloroethene (MCL 5 ppb)
- Benzene (MCL 5 ppb)
- 1,1,1-Trichlororethane (MCL 200 ppb)
- Tetrachloroethane (MCL 5 ppb)
- Vinyl Chloride (MCL 2 ppb)
- 1,1-Dichloroethene (MCL 7 ppb)
- 1,2-Dichloroethane (MCL 5 ppm)

These compounds were selected because they represent the primary risk drivers at OU 8 and have the largest aerial extent in both on- and off-Base OU 8 ground water. Statistical analyses were performed only for those indicator compounds detected in the baseline sampling rounds at concentrations which exceed their respective MCL as currently promulgated in the Safe Drinking Water Act.

To assess sampling method and laboratory variability present in the baseline sampling data, ground-water samples each were collected quarterly from selected monitoring wells. The relationship between ground-water elevations and contaminant concentrations was evaluated. In addition, a comparison was made between the historic data and the baseline sampling data to assess whether the two populations are representative of each other.

In general, the baseline mean concentrations were not significantly different from the historical data. There were some trends observed between ground-water elevation and contaminant concentration. The statistical evaluation indicated a few significant trends but the majority were not significant at a 95 percent confidence level. There were three on-Base wells with statistically significant trends in contaminant concentrations with time. The three on-Base wells are U3-031, which exhibited a decreasing trend for TCE and an increasing trend for PCE; U3-043, which exhibited a decreasing trend for TCE; and U8-024, which exhibited an increasing trend for TCE. The four off-Base wells exhibiting statistically significant trends are U8-032, U8-040, and U8-065. Wells U3-052 and U8-032 exhibited an increasing trend in TCE concentration. Well U8-040 exhibited an increasing trend in cis-1,2-DCE concentration, and U8-065 exhibited an increasing trend in PCE concentration. The remaining on- and off-Base wells did not have any statistically meaningful results at a 95 percent confidence level.